

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for transmitting data units from a node in a communications network, the node including ~~one or more~~ a plurality of network interfaces, ~~each of the one or more~~ plurality of network interfaces being associated with respective at least one output transmission queues, the method comprising:

identifying a first network interface of the one of the one or more plurality of network interfaces for transmitting a first data unit;

subsequent to identifying the first network interface, storing the first data unit in an output transmission queue ~~of the at least one output queue~~ associated with the ~~identified first~~ network interface;

~~retrieving, for the identified network interface, the first data unit from the output queue associated with the identified network interface;~~

subsequent to storing the first data unit in the output transmission queue associated with the first network interface, ~~determining~~ identifying a second network interface one of the one or more plurality of network interfaces from which the first data unit is to be transmitted; and

in response to determining that the second network interface is different from the first network interface, forwarding the data unit to the ~~determined second~~ network interface for transmission ~~when the determined network interface is the identified network interface.~~

2. (Original) The method of claim 1 wherein the communications network is an ad hoc network.

3. (Original) The method of claim 1 further comprising: determining, prior to storing the first data unit, whether the first data unit is a multicast data unit.

4. (Currently Amended) The method of claim 3 further comprising: determining, when the first data unit is not a multicast data unit, a priority for the first data unit; and storing the first data unit in a sub-queue within the output transmission queue associated with the ~~identified first~~ network interface based on the determined priority.

5. (Currently Amended) The method of claim 3 further comprising: determining, when the first data unit is a multicast data unit, a priority for the first data unit; and storing the first data unit in a sub-

queue within an ~~output~~transmission queue of the ~~at least one output queue~~ associated with each of the ~~one or more~~plurality of network interfaces based on the determined priority.

6. (Currently Amended) The method of claim 3 further comprising: determining, when the first data unit is a multicast data unit, a priority for the first data unit; and storing the first data unit in a sub-queue within an ~~output~~transmission queue of the ~~at least one output queue~~ associated with at least one of the ~~one or more~~plurality of network interfaces based on the determined priority.

7. (Currently Amended) The method of claim 3 wherein, when the first data unit is a multicast data unit, ~~the determining~~identifying the second network interface one of the one or more network interfaces includes: identifying a next node to receive the first data unit from a list of next nodes, and ~~determining~~identifying the one of the one or more second network interfaces based on the identified next node.

8. (Currently Amended) The method of claim 7, wherein in response to determining that the first network interface is the same as the second network interface, further comprising: storing, prior to the forwarding, a copy of the first data unit in the ~~output~~transmission queue associated with the ~~identified second~~ network interface, ~~when the determined network interface is the identified network interface,~~ and recording a current position in the list of next nodes.

9. (Original) The method of claim 7 further comprising: dropping the first data unit when no next node is identified from the list of next nodes.

10. (Currently Amended) The method of claim 1 further comprising: assigning a sequence number to the first data unit, and wherein the storing the first data unit includes: storing the sequence number with the first data unit in the ~~output~~transmission queue associated with the ~~identified first~~ network interface.

11. (Currently Amended) The method of claim 10 further comprising: in response to determining that the first network interface is different than the second network interface, storing the first data unit in an ~~output~~transmission queue of the ~~at least one output queue~~ associated with the ~~determined second~~ network interface ~~when the determined network interface is different from the identified network interface.~~

12. (Currently Amended) The method of claim 11 wherein the storing the first data unit in the outputtransmission queue associated with the ~~determined~~ second transmission interface includes: storing the first data unit in the outputtransmission queue associated with the ~~determined~~ second transmission interface based on the sequence number assigned to the first data unit.

13. (Cancelled)

14. (Currently Amended) A network device comprising:

~~one or more a plurality of outputtransmission~~ queues, ~~each of the one or more output queues~~ for storing ~~one or more~~ data units;

~~one or more a plurality of~~ network interfaces, ~~each of the one or more network interfaces~~ being associated with respective at least one of the one or more outputtransmission queues and being configured to forward the one or more data units to other network devices; and

a forwarding module configured to:

receive a first data unit,

identify ~~one of the one or more a~~ first network interface of the plurality of network interfaces for transmitting the first data unit,

subsequent to identifying the first network interface, store the first data unit in an outputtransmission queue of the ~~at least one output queue~~ associated with the identified first network interface,

~~retrieve the first data unit from the output queue associated with the identified~~ ~~network interface,~~

subsequent to storing the first data unit in the outputtransmission queue, ~~determine~~ identify a second network interface ~~one of the one or more plurality of~~ network interfaces for transmitting the first data unit, and

in response to determining that the first network interface is different from the second network interface, forward the first data unit to the ~~determined~~ second network interface ~~when the determined network interface corresponds to the identified network interface.~~

15. (Original) The network device of claim 14 wherein the forwarding module is further configured to: determine, prior to storing the first data unit, whether the first data unit is a multicast data unit.

16. (Currently Amended) The network device of claim 15 wherein the forwarding module is further configured to: determine, when the first data unit is not a multicast data unit, a priority for the first data unit, and store the first data unit in a sub-queue within the outputtransmission queue associated with the ~~identified-first~~ network interface based on the determined priority.

17. (Currently Amended) The network device of claim 15 wherein the forwarding module is further configured to: determine, when the first data unit is a multicast data unit, a priority for the first data unit; and store the first data unit in a sub-queue within an outputtransmission queue of the at least ~~one output queue~~ associated with each of the ~~one or more~~ plurality of network interfaces based on the determined priority.

18. (Currently Amended) The network device of claim 15 wherein, when ~~determining-identifying~~ the ~~one of the one or more network interfaces~~ second network interface, the forwarding module is, when the first data unit is a multicast data unit, further configured to: identify a next node to receive the first data unit from a list of next nodes, and ~~determine the one of the one or more network~~ identify the second network -interfaces based on the identified next node.

19. (Currently Amended) The network device of claim 18 wherein the forwarding module is further configured to, in response to determining that the first network interface is the same as the second network interface,[[:]] store the first data unit in the outputtransmission queue associated with the ~~identified-second~~ network interface ~~when the determined network interface is the identified network interface~~, and record a current position in the list of next nodes.

20. (Original) The network device of claim 18 wherein the forwarding module is further configured to: discard the first data unit when no next node is identified in the list of next nodes.

21. (Currently Amended) The network device of claim 14 wherein the forwarding module is further configured to: assign a sequence number to the first data unit, and wherein, when storing the first data unit, the forwarding module is configured to: store the sequence number with the first data unit in the outputtransmission queue associated with the ~~identified-first~~ network interface.

22. (Currently Amended) The network device of claim 21 wherein the forwarding module is further configured to: in response to determining that the first network interface is different than the second network interface, store the first data unit in an outputtransmission queue ~~of the at least one output queue~~ associated with the ~~determined second~~ network interface ~~when the determined network interface is different from the identified network interface.~~

23. (Currently Amended) The network device of claim 22 wherein, when storing the first data unit in the outputtransmission queue associated with the ~~determined second~~ network interface, the forwarding module is configured to: store the first data unit in the outputtransmission queue associated with the ~~determined second~~ network interface based on the sequence number assigned to the first data unit.

24. (Currently Amended) The network device of claim 15 wherein the forwarding module is further configured to: determine, when the first data unit is a multicast data unit, a priority for the first data unit, and store the first data unit in a sub-queue within an outputtransmission queue ~~of the at least one output queue~~ associated with at least one of the ~~one or more~~ plurality of network interfaces based on the determined priority.

25. (Currently Amended) A system for transmitting data units from a node in a communications network, the node including ~~one or more~~ a plurality of network interfaces, ~~each of the one or more plurality~~ network interfaces being associated with ~~at least one respective~~ outputtransmission queues, the system comprising:

means for identifying ~~one of the one or more~~ a first network interfaces for transmitting a data unit;

means for, subsequent to identifying the first network interface, storing the data unit in an outputtransmission queue ~~of the at least one output queue~~ associated with the identified first network interface;

~~means for retrieving, for the identified network interface, the data unit from the output queue associated with the identified network interface;~~

means for separately ~~determining~~identifying, subsequent to storing the data unit in the ~~output~~transmission queue, ~~a second one of the one or more~~ network interfaces from which the data unit is to be transmitted; and

means for, in response to determining that the first network interface is different from the second interface, sending the data unit to the ~~determined~~second network interface for transmission ~~when the determined network interface corresponds to the identified network interface~~.

26. (Currently Amended) A computer-readable medium containing a plurality of instructions that, when executed by at least one processor, causes the at least one processor to perform a method for transmitting data units in a communications network, the method comprising:

identifying a first ~~one of a group of one or more~~network interface of a plurality of network interfaces for transmitting a data unit;

subsequent to identifying the first network interface, storing the data unit in an ~~output~~transmission location corresponding to the first network interface;

~~retrieving, for the first network interface, the data unit from the output location;~~

identifying, after ~~retrieving the data unit~~storing the data unit, a second ~~one of the group of one or more~~network interface of the plurality of network interfaces from which the data unit is to be transmitted; and

in response to determining that the first network interface is different than the second network interface, forwarding the data unit to the second network interface for transmission ~~when the second network interface corresponds to the first network interface~~.

27. (Currently Amended) The computer-readable medium of claim 26 further comprising: determining whether the data unit is a multicast data unit, and wherein the method further comprises: ~~determine~~determining, when the ~~first~~ data unit is a multicast data unit, a priority for the ~~first~~ data unit, and store the ~~first~~ data unit in an ~~output~~transmission location associated with at least one of the ~~one or more~~plurality of network interfaces based on the determined priority.

28. (Currently Amended) A method for transmitting data units from a node that includes ~~one or more~~a plurality of network interfaces, comprising:

upon one of receipt of a data unit by the node and generation of a data unit by the node, identifying a first network interface of ~~one of the one or more~~ the plurality of network interfaces from which to transmit a the data unit to another node ~~when the data unit is received by the node or generated by the node;~~

subsequent to identifying the first ~~one of the~~ network interfaces, and in response to determining that the node is ready to transmit the data unit, ~~determining~~ identifying a second network interface of the plurality of ~~one of the one or more~~ network interfaces to transmit the data unit ~~when the data unit is ready to be transmitted by the node;~~ and

in response to determining that the first network interface is different than the second network interface, transmitting the data unit via the second network interface ~~when the second network interface is the same as the first network interface.~~

29. (Currently Amended) The method of claim 28 further comprising: storing the data unit in an outputtransmission queue associated with the first network interface; and subsequent to identifying the second network interface, storing the data unit in an outputtransmission queue associated with the second network interface ~~when the second network interface is different from the first network interface.~~

30. (Currently Amended) The method of claim 28 further comprising: determining whether the data unit is a multicast data unit; and storing, when the data unit is a multicast data unit, the data unit in an outputtransmission queue associated with each of the ~~one or more~~ plurality of network interfaces.

31. (Original) The method of claim 28 wherein the data unit is a multicast data unit, and wherein the method further comprises: storing, for each neighboring node, information indicating whether the multicast data unit has been transmitted to that neighboring node.

32. (Currently Amended) A network device comprising:

~~one or more a plurality of~~ network interfaces configured to transmit data units; and a forwarding module configured to:

upon one of receipt of a data unit by the network device and generation of a data unit by the network device, identify ~~one of the one or more a~~ first network interface of the plurality of network interfaces to transmit a the data unit to another

~~node-network device~~when the data unit is received by the network device or
generated by the network device,

determine, subsequent to identifying ~~one of the network interfaces~~the first
network interface and in response to determining that the network device is ready to
transmit the data unit, a second network interface of the plurality of ~~one of the one or~~
~~more~~network interfaces to transmit the data unit when the data unit is ready to be
transmitted by the network device, and

in response to determining that the first network interface is different than the
second network interface, forward the data unit to the ~~determined~~second network
interface for transmission when the determined network interface is the identified
network interface.

33. (Currently Amended) The network device of claim 32 further comprising: ~~one or more a~~
~~plurality of~~ output-transmission queues, each of the one or more output queues being associated
with respective network interfaces of the plurality of network interfaces~~one of the one or more~~
~~network interfaces~~ and configured to store data units for the associated respective network
interfaces.

34. (Currently Amended) The network device of claim 33 wherein the forwarding module is further
configured to: store the data unit in an ~~output-transmission queue of the one or more output queues~~
associated with the ~~identified first~~ network interface, and subsequent to forwarding the data to the
second network interface, store the data unit in an ~~output-transmission queue of the one or more~~
~~output queues~~ associated with the ~~determined second~~ network interface when the determined
network interface is not the identified network interface.

35. (Canceled)

36. (Currently Amended) The network device of claim 32 wherein the ~~one or more~~plurality of
network interfaces ~~is~~are configured to transmit the data units via a wireless link.

37. (Original) The network device of claim 32 wherein the data unit is a multicast data unit, and
wherein the forwarding module is further configured to: store, for each neighboring node,

information indicating whether the multicast data unit has been transmitted to that neighboring node.

38. (Currently Amended) A computer-readable medium containing a plurality of instructions that, when executed by at least one processor in a node that includes ~~one or more~~ a plurality of network interfaces, causes the at least one processor to perform a method for transmitting data units in a communications network, the method comprising:

upon one of receipt of a data unit by the node and generation of a data unit by the node,
identifying a first network interface of the plurality of ~~one of the one or more~~ network interfaces to transmit ~~a the~~ data unit to another node ~~when the data unit is received by the node or generated by the node;~~

subsequent to identifying ~~one of the~~ the first network interfaces and in response to
determining that the node is ready to transmit the data unit, determining a second network interface
of the plurality of ~~one of the one or more~~ network interfaces to transmit the data unit ~~when the data~~
~~unit is ready to be transmitted by the node;~~ and

in response to determining that the first network interface is different from the second
network interface, transmitting the data unit via the ~~determined~~ second network interface ~~when the~~
~~determined network interface corresponds to the identified network interface.~~

39–44. (Canceled)

45. (Currently Amended) A method for transmitting data units from a node in a communications network, the node including ~~one or more~~ a plurality of network interfaces, the method comprising:

placing a data unit in ~~an output~~ transmission queue associated with a first of the plurality of
~~at least one of the one or more~~ network interfaces;

identifying, when the data unit reaches a head of the ~~output~~ transmission queue, one or more
second network interfaces from which the data unit is to be transmitted; and

placing the data unit at a head of ~~an output~~ transmission queue associated with each of the
~~identified~~ second network interfaces for transmission.

46. (Currently Amended) The method of claim of claim 45, wherein placing a data unit in ~~an output~~
transmission queue comprises storing a copy of the data unit in the ~~output~~ transmission queue.

47. (Currently Amended) The method of claim 45, wherein placing a data unit in an ~~output~~ transmission queue comprises storing the data unit in a memory and storing a placeholder in the ~~output~~ transmission queue.

48. (Currently Amended) The method of claim 45, wherein identifying one or more second network interfaces from which the data unit is to be transmitted comprises identifying neighboring nodes to receive the data unit.

49. (Currently Amended) The method of claim 48, wherein identifying one or more second network interfaces from which the data unit is to be transmitted comprises identifying one or more network interfaces by which the identified neighboring nodes can be reached.

50. (Previously Presented) The method of claim 48, comprising transmitting the data unit to the identified neighboring nodes.